Power Systems

Standby Generators

Prime Power Generators

Uninterruptible Power Supplies (UPS)

Flint Energies has sold and installed a number of standby generators at a variety of locations.

Flint Energies Sells, Installs, and Services Generation Equipment In A Variety of Fuel Configurations.

Diesel
(Skid tank under generator)

GENERAC®
POWER SYSTEMS, INC.

Natural Gas
(Meter and regulator next to generator)

Liquid Propane
(Propane fuel tank next to generator)

Assessing The Need

Emergency standby generators could be a necessity if a continuous power source is critical to the business. Some businesses may not need coverage for all equipment, thus reducing the size of the generator as well as cost. Many businesses use a generator in order to have continued access to their computers and to back up their UPS systems.

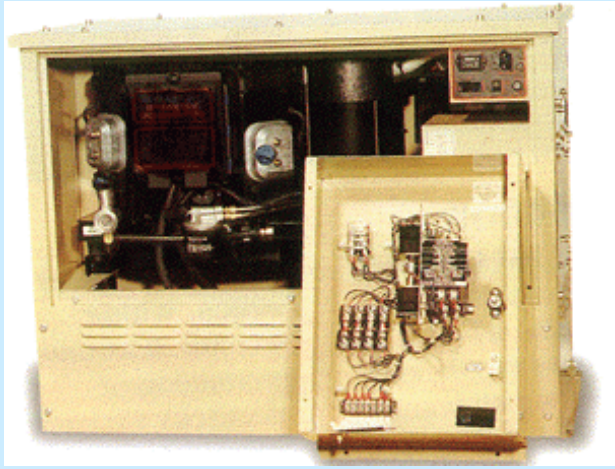
Utility Power Alternatives

Standby Generators - Provide electric power to an appliance, building or other equipment when the utility power is off.

Prime Power Generators - Provides electric power to an appliance, building or other equipment as the primary source of electricity. (Similar to utility power)

Uninterruptible Power Supplies (UPS) - Provides a temporary source of power. The main feature of the UPS is the seamless transition when utility turns off and the UPS takes over. A standby generator can be integrated for a seamless transition from utility to standby generator power. The UPS can be powered by batteries or a centifical flywheel.

Generator Sizing

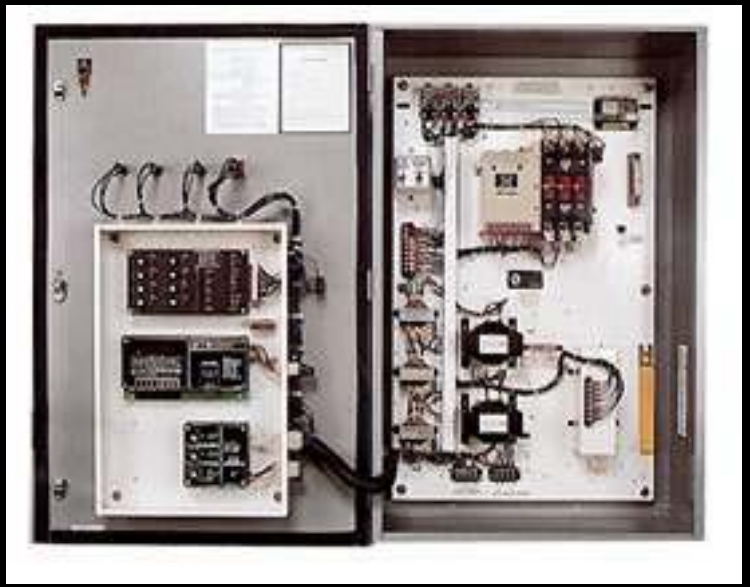


The size of the generator required would depend upon what equipment will need to be powered during an outage. Additionally, some motors require added "start-up" power which is rated higher than normal continuous operation. For instance, a 1 HP motor would need 1 kW to run but could require a "surge" of 3kW - 5kW to get started. Ratings appear on the motors face plates.

Other Sizing Considerations

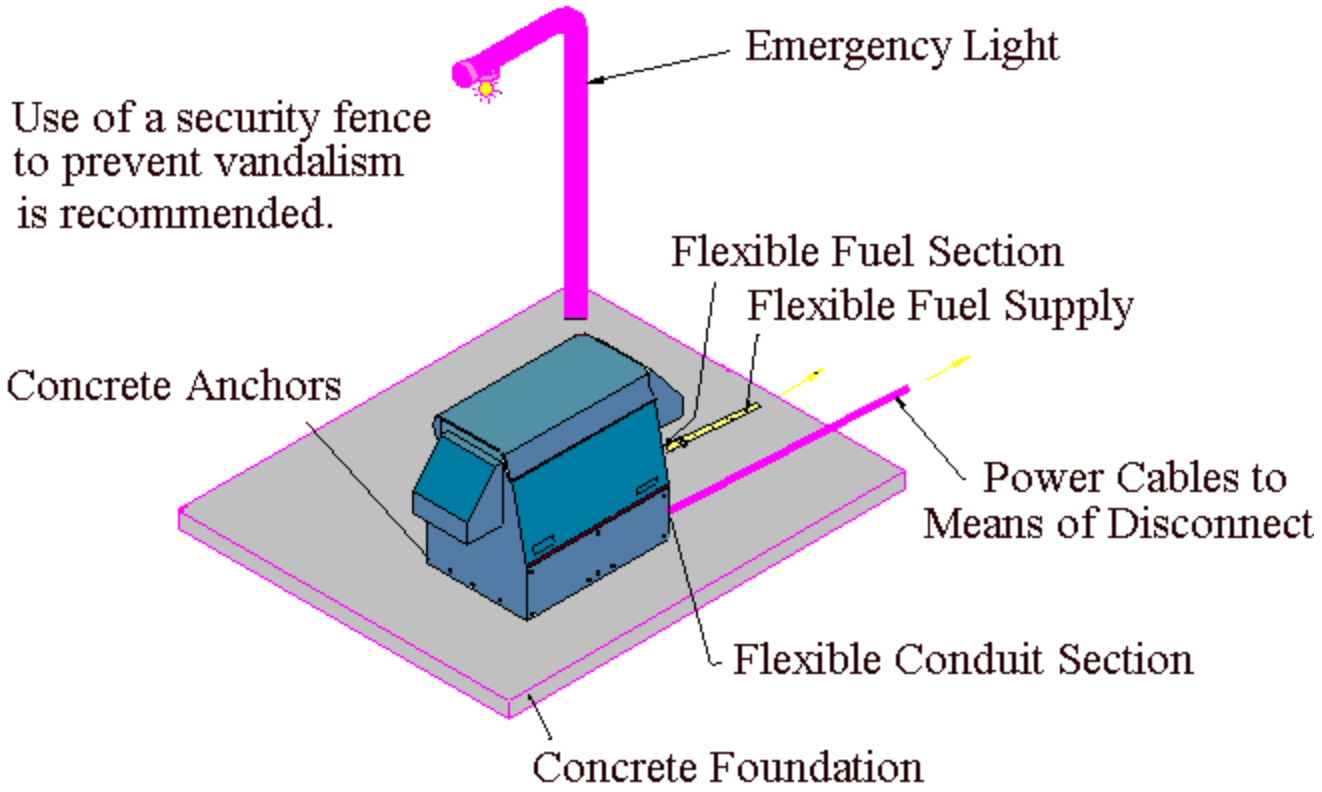
Large motor loads, uninterruptible power supplies (UPS), variable frequency drives (VFD) and medical diagnostic imaging equipment have a considerable effect on sizing and considerations should be made accordingly.

Typical Automatic Transfer Switch




GENERAC

Basic Exterior Installation of A Standby Generator

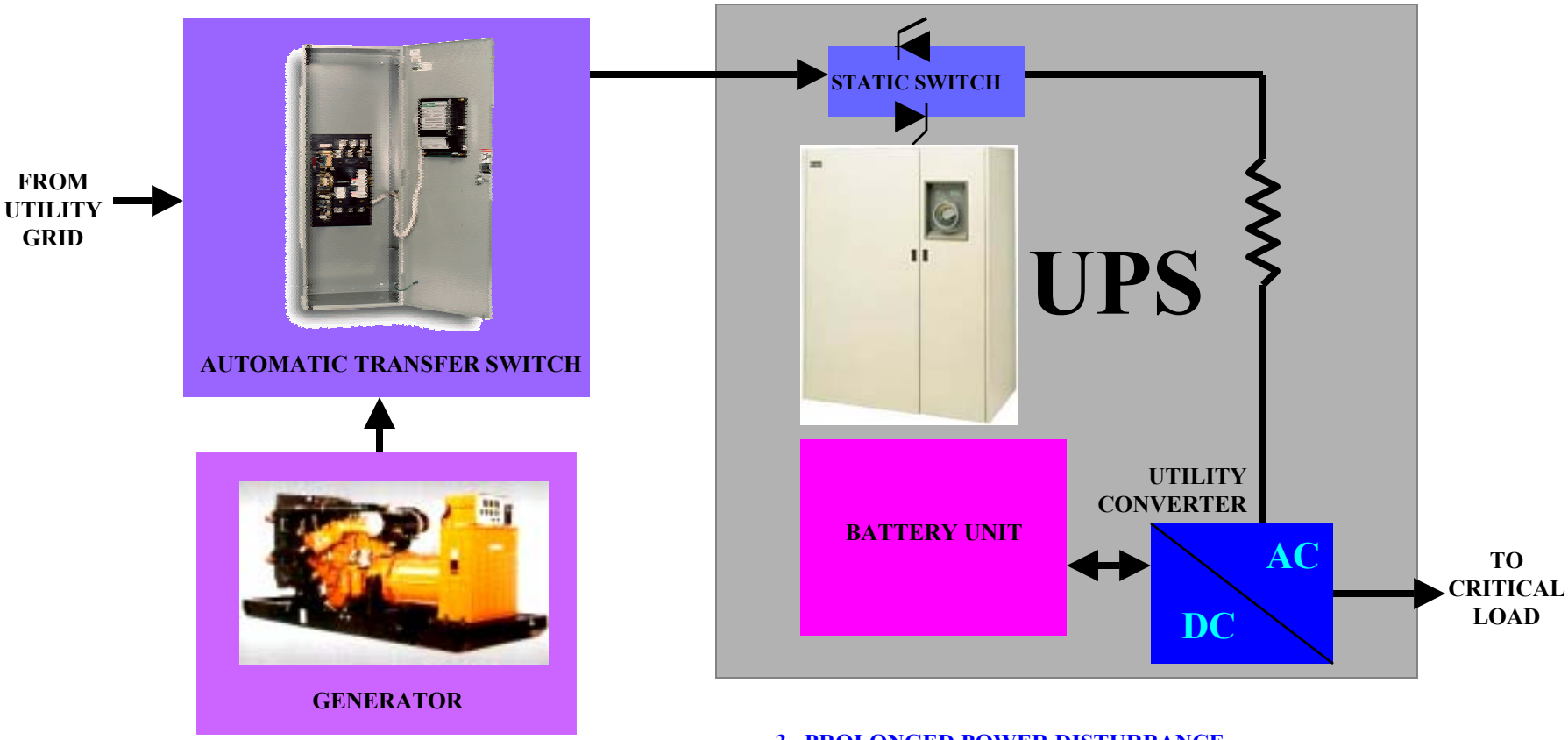


Uninterruptible Power Supplies (UPS)

The battery powered UPS units.

Liebert® KEEPING BUSINESS IN BUSINESS®

How does a Battery UPS system work?



1. NORMAL OPERATION

Power flows from the utility grid to the critical load while maintaining a charge on the battery. The bi-directional converter (utility converter) is always energized and immediately available to to supply power in either direction.

2. UTILITY DISTURBANCE

When the UPS senses a frequency or voltage disturbance, the battery begins to transfer power and the static switch opens to ensure back-feed protection. This power is supplied to the critical load through the utility converter.

3. PROLONGED POWER DISTURBANCE

When the utility power disturbance is prolonged, the battery will supply uninterrupted power to the critical load while the transfer switch initiates a generator set start. When the gen set synchronizes with the utility converter output, the static switch closes. At that point, the utility inverter begins to walk in the generator set by slowly decreaing its current contribution to the load. When the generator set is fully walked in and powering the critical load, the utility inverter begins recharging the batteries from the generator set power.

4. RETURN TO NORMAL OPERATION

When utility power returns to normal, the utility converter walks in the utility and power again flows from the utility grid to the critical load.

Uninterruptible Power Supplies (UPS)

The flywheel powered UPS units we sell and install are manufactured by Active Power and distributed through Catepillar.

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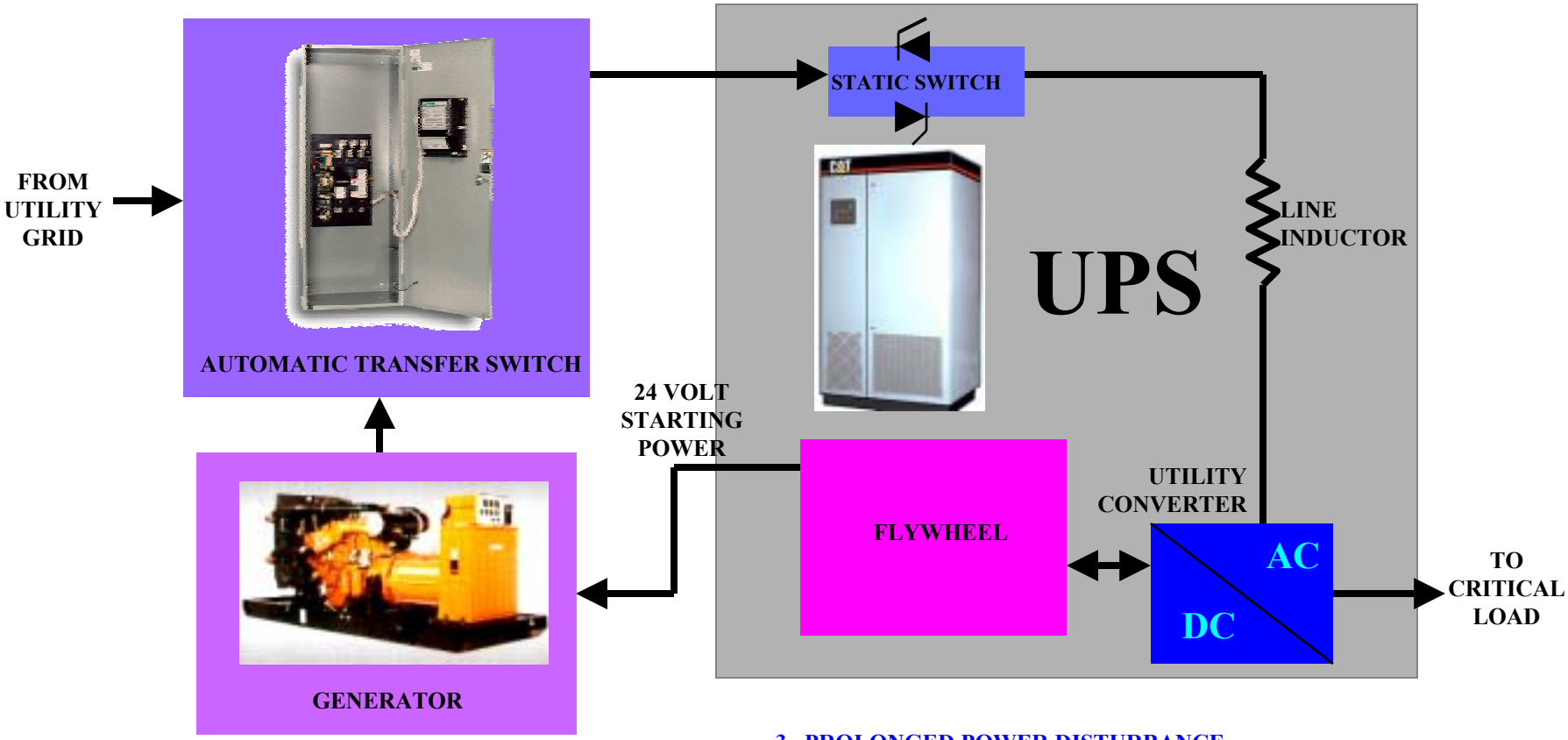
How does a Flywheel UPS system work?



1. NORMAL OPERATION

Power flows from the utility grid to the critical load while maintaining the flywheel at speed. The bi-directional converter (utility converter) is always energized and immediately available to to supply power in either direction.

2. UTILITY DISTURBANCE

When the UPS senses a frequency or voltage disturbance, the flywheel begins to generate power and the static switch opens to ensure back-feed protection. This power is supplied to the critical load through the utility converter.

3. PROLONGED POWER DISTURBANCE

When the utility power disturbance is prolonged, the flywheel will supply uninterrupted power to the critical load while the transfer switch initiates a generator set start. When the gen set synchronizes with the utility converter output, the static switch closes. At that point, the utility inverter begins to walk in the generator set by slowly decreaing its current contribution to the load. When the generator set is fully walked in and powering the critical load, the utility inverter begins recharging the flywheel from the generator set power.

4. RETURN TO NORMAL OPERATION

When utility power returns to normal, the utility converter walks in the utility and power again flows from the utility grid to the critical load.

Presentation After The Installation.

Flint Energies
Solutions for Living

Over The Years We Have Developed a Winning Team of Experts
To Provide Each Customer With
Superior Equipment, Professional Installations, and
Quality Service

1635 kW Diesel Generator

Flint Energies Generator Business is dedicated to solving problems in the power quality arena. Using the Liebert product line of UPS and the Generac Power Systems product line of generators, we can design a system to keep businesses operational during power outages or fluctuations in power. Solving power problems has never been easier than with our "turnkey" installation program. We'll take care of all design and installation issues.

Our turnkey installation program offers many advantages to our customers. Following is a list of some of the services included in this program.

- Design of System
- Load Calculations
- Floor Plan
- One Line Wiring Diagrams
- Consulting
- Electrical Installation
- Generator Installation
- Automatic Transfer Switch Installation
- Installation of fuel system
- Grounding System
- Lightning and surge suppression protection
- Start up
- Factory Warranty Service
- Preventive Maintenance Contracts
- Repair Service
- Training